AC for All or NETGEAR R6300

Introduction

Just recently our laboratory hosted a wireless router with support of IEEE 802.11ac by ASUS . This time our readers will get familiar with another wireless device, NETGEAR R6300, which also supports a draft of 802.11ac standard.

External design and hardware

NETGEAR R6300 wireless router comes in a black plastic case with dimensions of 205x255x77 mm. To work properly the device needs an external power unit (included in the box) with the following characteristics: 12V and 5A. The case is designed for vertical installation on a table, and wall mounting is not applicable.

The front panel is glazed and it has LEDs indicating statuses of the device, wireless network, USB client connection and internet connection, as well as an illuminated brand tag located on it.

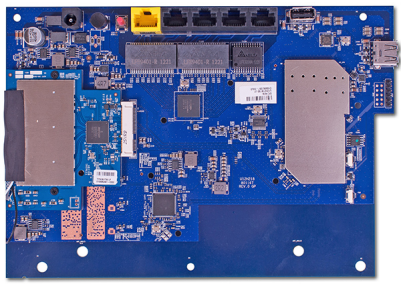
The upper panel is not remarkable at all and there is only a ventilation grate on it. One of the side panels looks completely the same. The other side panel features WPS and wireless network ON/OFF buttons as well as USB 2.0 port.

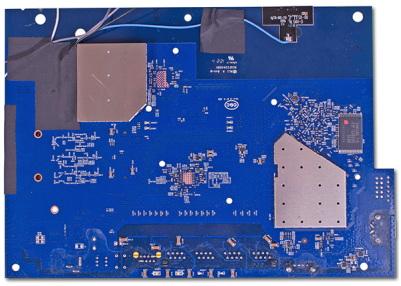
The bottom of the device is a stand that helps the router remain in a vertical position.

On the rear panel of the device there are a 3D brand tag, four LAN and one WAN ports, sunken Reset button, power socket with a switch, and one USB 2.0 port. The best part of the rear panel of the case is a ventilation grate.

There are two main blue textolite cards inside of R6300. Six additional small cards perform functions of antennae for both frequency ranges.

Samsung K9F1G08U0D with the size of 128 Mbytes acts as the flash memory. Wireless network in 802.11ac mode is supported by Broadcom BCM4360KMLG, whilst the support of 802.11n is performed by Broadcom BCM4331KMLG module.
Broadcom BCM53125SKMMLG chip performs functions of a Gigabit Ethernet switch.

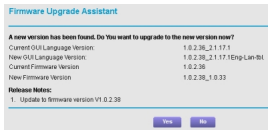




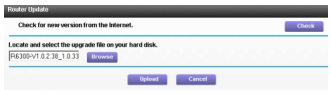
That is where we bring review of the device hardware to an end and pass on to examining capabilities of its software component.

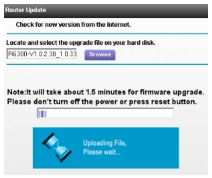
Firmware upgrade

Firmware upgrade is carried out in Router Update sub-group, Administration group of the web-interface advanced mode. Firmware upgrade may be carried out both in a manual and semi-automatic mode. To perform the firmware upgrade in the automatic mode the router needs to be connected to the global network. A user only needs to click on Check button and R6300 will automatically search for the latest firmware version on the vendor's web-site and offer the user to install it.


Firmware Upgrade Assistant
A new version has been found. Do You want to upgrade to the new version now?
Current GUI Language Version:
New GUI Language Version:
Current Firmware Version
New Firmware Version
Release Notes:
1. Update to firmware version V1.0.2.38
Yes
No

If there is no connection to the internet or in case one wishes to carry out the firmware upgrade manually, s/he will need to browse a file with the new firmware version downloaded beforehand and click on Upload button. Actually, the manual firmware upgrade mode is not that difficult as it only requires a pre-downloaded firmware upgrade file.

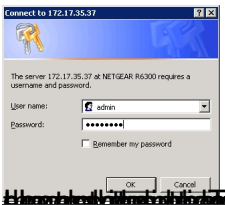


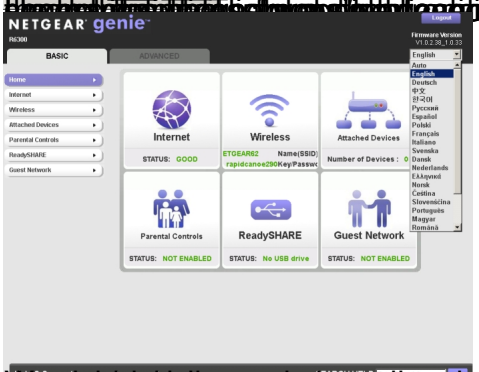

Router Update
Check for new version from the Internet.
Locate and select the upgrade file on your hard disk.
Browse
Note:It will take about 1.5 minutes for firmware upgrade.
Please don't turn off the power or press reset button.
Uploading File,
Please wait...

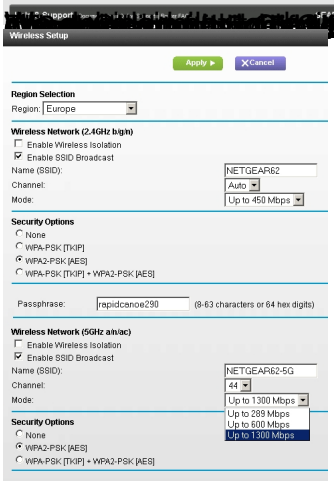
The whole upgrade procedure takes about two minutes (not including the firmware download time).

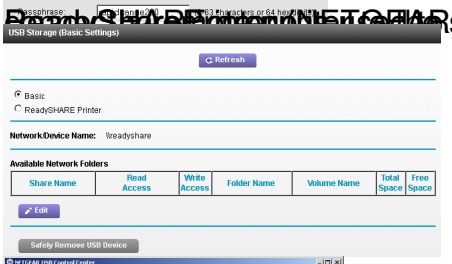
Web-interface

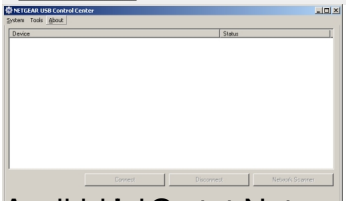
One can access the web-interface by entering 192.168.1.1 in any modern browser. By default the login and password are admin and password, correspondingly.



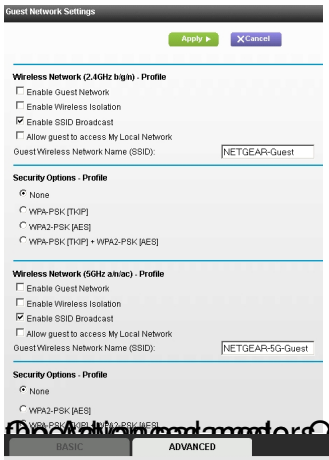




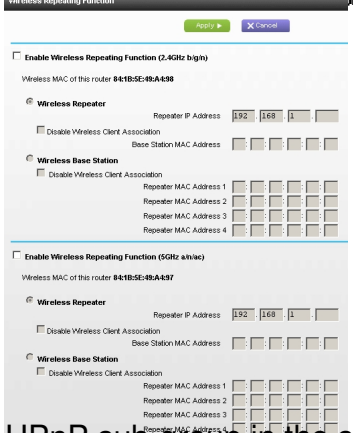


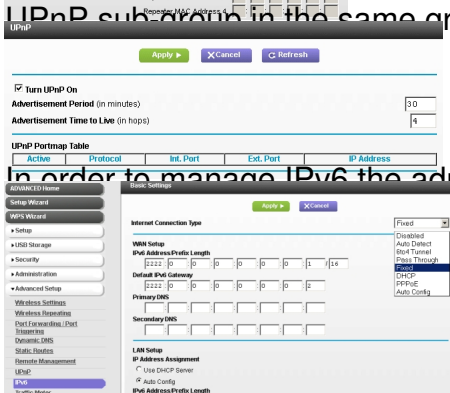


guest network in each wireless range. These settings can be

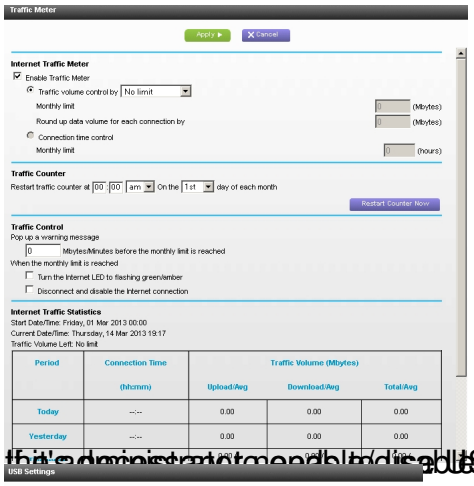

Guest Network Settings
Apply
Cancel
Wireless Network (2.4GHz b/g/n) - Profile
Enable Guest Network
Enable Wireless Isolation
Enable SSID Broadcast
Allow guest to access My Local Network
Guest Wireless Network Name (SSID):
NETGEAR-Guest
Security Options - Profile
None
WPA-PSK [TKIP]
WPA2-PSK [AES]
WPA-PSK [TKIP] + WPA2-PSK [AES]
Wireless Network (5GHz a/n/ac) - Profile
Enable Guest Network
Enable Wireless Isolation
Enable SSID Broadcast
Allow guest to access My Local Network
Guest Wireless Network Name (SSID):
NETGEAR-5G-Guest
Security Options - Profile
None
WPA2-PSK [AES]

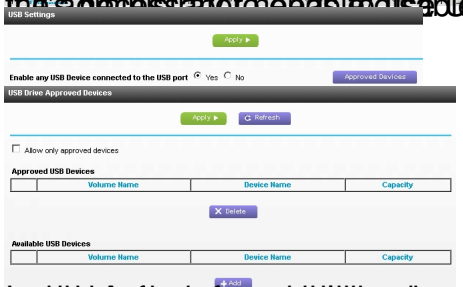
BASIC
ADVANCED
ADVANCED Home
Setup Wizard
WPS Wizard
Setup
USB Storage
Security
Administration
Advanced Setup
Router Information
Hardware Version
Firmware Version
GUI Language Version
LAN Port
MAC Address
IP Address
DHCP
Reboot
Internet Port
MAC Address
IP Address
Connection
IP Subnet Mask
Domain Name Server
Show Statistics
Connection Status
Wireless Settings (2.4GHz)
Name (SSID)
Region
Channel
Mode
Wireless AP
Broadcast Name
Wireless isolation
Wi-Fi Protected Setup
Wireless Settings (5GHz)
Guest Network (2.4 GHz)
Guest Network (5 GHz)
Allow guest to access My Local Network


Wireless Repeating Function
Apply
Cancel
Enable Wireless Repeating Function (2.4GHz b/g/n)
Wireless MAC of this router 84:1B:5E:49:A4:98
Wireless Repeater
Repeater IP Address
Disable Wireless Client Association
Base Station MAC Address
Wireless Base Station
Repeater MAC Address 1
Repeater MAC Address 2
Repeater MAC Address 3
Repeater MAC Address 4
Enable Wireless Repeating Function (5GHz a/n/ac)
Wireless MAC of this router 84:1B:5E:49:A4:97


UPnP
Apply
Cancel
Refresh
Turn UPnP On
Advertisement Period (in minutes)
Advertisement Time to Live (in hops)
UPnP Portmap Table
Active
Protocol
Int. Port
Ext. Port
IP Address

ADVANCED Home
Setup Wizard
WPS Wizard
Setup
USB Storage
Security
Administration
Advanced Setup
Wireless Settings
Wireless Repeating
Port Forwarding / Port Triggering
Dynamic DNS
Static Routes
Remote Management
UPnP
IPv6
Traffic Meter
Basic Settings
Apply
Cancel
Internet Connection Type
Fixed
Disabled
Auto Detect
6to4 Tunnel
Pass Through
Fixed
DHCP
PPPoE
Auto Config
WAN Setup
IPv6 Address/Prefix Length
Default IPv6 Gateway
Primary DNS
Secondary DNS
LAN Setup
IP Address Assignment
Use DHCP Server
Auto Config
IPv6 Address/Prefix Length

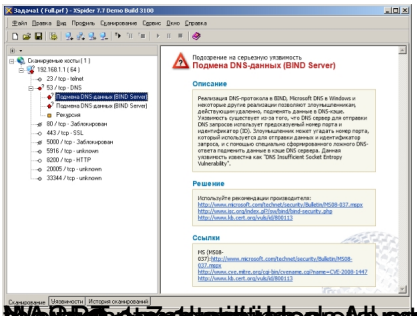


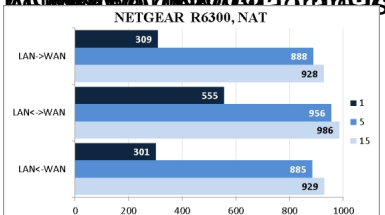


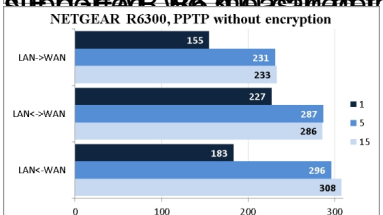
Testing

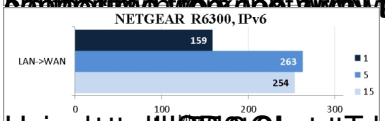
The first testing procedure we usually begin our testing section with is estimating the booting time of the device, which is a time interval starting with the moment when the power is on until the first echo reply is received through ICMP protocol. NETGEAR R6300 boots in 67 seconds and we believe that this result is decent.

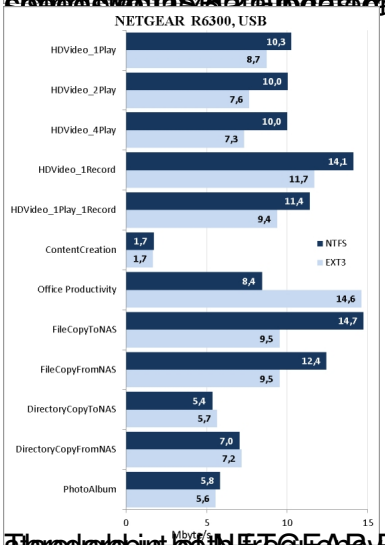
The second test we usually do is conducting a security scanning procedure, which has been carried out using Positive Technologies XSpider 7.7 (Demo build 3100) utility. On the whole, there were nine open ports discovered, and they are TCP-23 (Telnet), TCP-53 (DNS), TCP-80 (Blocked), TCP-443 (SSL), TCP-5000 (Blocked), TCP-5916 (unknown), TCP-8200 (HTTP), TCP-20005 (unknown), and TCP-33344 (unknown). The most interesting data are presented below.

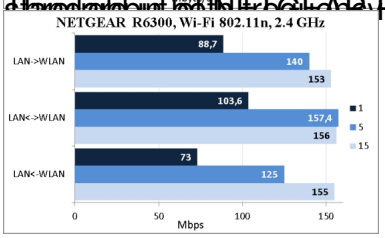

Подмена DNS-данных (BIND Server)
Описание
Решение
Ссылки

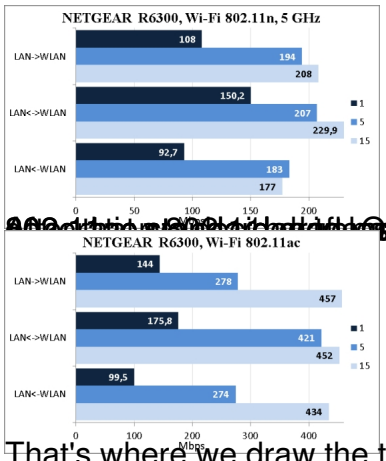

NETGEAR R6300, NAT
LAN->WAN
309
888
928
LAN<->WAN
555
956
986
LAN<-WAN
301
885
929
0
200
400
600
800
1000
1
5
15


NETGEAR R6300, PPTP without encryption
LAN->WAN
155
231
233
LAN<->WAN
227
287
286
LAN<-WAN
183
296
308
0
100
200
300
1
5
15


NETGEAR R6300, IPv6
LAN->WAN
159
263
254
0
100
200
300
1
5
15


NETGEAR R6300, USB
HDVideo_1Play
10,3
8,7
HDVideo_2Play
10,0
7,6
HDVideo_4Play
10,0
7,3
HDVideo_1Record
14,1
11,7
HDVideo_1Play_1Record
11,4
9,4
ContentCreation
1,7
1,7
NTFS
EXT3
Office Productivity
8,4
14,6
FileCopyToNAS
14,7
9,5
FileCopyFromNAS
12,4
9,5
DirectoryCopyToNAS
5,4
5,7
DirectoryCopyFromNAS
7,0
7,2
PhotoAlbum
5,8
5,6
0
5
10
15
Mbyte/s


NETGEAR R6300, Wi-Fi 802.11n, 2.4 GHz
LAN->WLAN
88,7
140
153
LAN<->WLAN
103,6
157,4
156
LAN<-WLAN
73
125
155
0
50
100
150
Mbps
1
5
15



That's where we draw the testing chapter to a close and move on to summing it all up.

Conclusion

Generally, we are quite glad about NETGEAR R6300 wireless router we have tested. Support of the cutting-edge IEEE 802.11ac standard draft accounts for a substantial increase in data transmission speeds within the wireless segment; now they amount to never-before-seen half a gigabit per second. It'd be fair to mention that there are still almost no client AC adapters which support this standard in free sale, however according to what the vendors have told us, they will be available for sale from all major electronics shops in the soonest possible time.

The strength areas of NETGEAR R6300 wireless router are presented below.

- Support of two wireless frequency ranges
- Presence of traffic meter
- High routing speeds
- Support of IEEE 802.11ac standard draft
- Ability to block unauthorized USB devices
- Excellent data transmission speeds upon operation with PPTP
- Support of IPv6
- May be managed both via the web-interface and mobile applications
- Excellent data transmission speeds in the wireless network segment

Unfortunately, we cannot help to mention certain drawbacks we have discovered.

- Absence of a time zone for Moscow
- Inability to switch NAT off
- Absence of encryption support for PPTP
- High price

As of when this article was being written, the average price for a NETGEAR R6300 in Moscow online shops was 7500 roubles.

Reportedly, the first ever wireless AC adapter by NETGEAR with support of IEEE 802.11ac standard draft, A6200-100PES, will go on sale in Russia late in March 2013.